No. 13352

IN THE

United States Court of Appeals

FOR THE NINTH CIRCUIT

JULES D. GRATIOT and AIR-MAZE CORPORATION,
Appellants,

vs.

FARR COMPANY, a corporation,
Appellee.

SUPPLEMENTAL BRIEF FOR APPELLEE.

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I.
STATEMENT OF THE CASE.

This is an appeal by Appellants Jules D. Gratiot and Air-Maze Corporation from two judgments against them in a patent infringement action brought by Appellee, the Farr Company. The action was first tried before the Honorable Peirson M. Hall, United States District Judge for the Southern District of California, Central Division. The District Court's opinion [R. 819], judgment [R. 67] and conclusions of law [R. 65] held the claims in suit, Nos. 4, 5, 7 and 8 of Farr patent 2,286,479 valid and infringed by the Air-Maze P-5 air filter panel manufactured by Appellant Air-Maze and sold by Appellants Air-Maze and Gratiot. Appellee charged infringement of these four claims only [R. 14]. The judgment was en-

tered on February 26, 1952, and Appellants appealed therefrom, but after the filing of briefs and prior to the date set for final hearing Appellants filed a Motion to Reopen and Remand based upon purportedly newly discovered evidence which they asserted bore upon the issues of validity and infringement. On May 27, 1954, this Court entered an order remanding the case to the trial court to receive evidence relative to the bearing of a prior device known as the "Kleenaire Filter" upon the validity and infringement of the patent in suit and for making and filing findings of fact and conclusions of law and such further judgment, if any, as the trial judge deemed appropriate [R. 1186]. Thereafter on August 27, 1953, depositions of several witnesses relative to the Kleenaire filters were taken by Appellants in Stevens Point, Wisconsin. On October 19, 20, 1954, the further trial ordered by this Court was held and new findings of fact and conclusions of law and a judgment entered on November 19, 1954 [R. 1177-1182]. This new judgment provided that the evidence presented with respect to the Kleenaire filter required no modification of the original judgment of February 26, 1952, except that plaintiffs below were entitled to recover costs for the proceedings had pursuant to the Order to Reopen and Remand. Appellants have appealed from this new judgment and reappealed from the original judgment [R. 1183].

In its new Findings of Fact the District Court found that while certain Kleenaire filters had been made and sold prior to the date of invention of the Farr patent in suit [Finding 24, R. 1178]; such filters offered only cumulative evidence as respects other prior filters considered at the earlier trial and did not contain either the elements, the mode of operation or the new and surprising results

of the filter of the Farr patent in suit [Finding 32, R. 1180]; and that the Kleenaire filters had no utility [Finding 26, R. 1178]. The court also entered other and more detailed findings which will be considered hereafter pointing out the differences in structure, performance, and mode of operation between the Kleenaire filter on the one hand and the patented Farr filter and infringing Air-Maze filter on the other hand [R. 1178-1181]. While Appellants sought to establish prior manufacture and sale of variations of this Kleenaire filter (which variations are described in Appellants' Supplemental Brief as the "45° Kleenaire" filter) the trial court found that the evidence was insufficient to support a finding that any such variations were ever made or sold [Finding 33, R. 1180].

While this Brief is supplemental to the original Brief for Appellee, it is deemed necessary to briefly describe the structure, mode of operation and performance of the filter of the patent in suit and the infringing Air-Maze P-5 filter in order that the evidence presented with respect to the Kleenaire filter can be properly evaluated.

A. The Farr and Air-Maze P-5 Filters.

These are air filters, operating on the impingement principle, which utilize corrugated sheets of wire screens for the filter media. These sheets are set parallel to the general direction of air flow through the filter, and the corrugations, or crimps as they are frequently called in the record, form valleys which provide air passages extending through the filter independently of the openings of the screen mesh. These corrugated wire screen sheets are stacked one above the other to divide the filter panel both in the horizontal and vertical dimensions into a multiple of small passages. Nesting of the sheets is prevented in the case of the Farr filter by interposing flat

sheets of screen between the corrugated sheets, and in the case of the Air-Maze P-5 filter by reversing the angle of the corrugations of successive sheets. The corrugations are formed in a herringbone pattern, that is, with a sharp bend to provide an abrupt change in the direction of the corrugation and accordingly the air passage through the filter formed by the valley of the corrugation [R. 127, 128, 158]. An examination of the Farr filter [Physical Ex. 2] and the Air-Maze P-5 filter [Physical Ex. 12] demonstrates that in both filters the corrugations or crimps which form the passageways extend entirely through the filter, having open ends on each face of the filter, thereby permitting air to flow into and out of the filter down the passageway formed by the valley of each corrugation [R. 1372-1374]. In addition to the different expedients employed to prevent nesting of the corrugated sheets above described, the filters differ in structure only in that the corrugations of the Air-Maze P-5 filter have two bends or abrupt changes in direction rather than one as in the case of the Farr filter. The District Court found that these slight differences do not avoid infringement and that the two filters are essentially and basically the same [Finding 19, R. 64]. That such finding is not only fully supported by the evidence but, indeed, that the record contains no evidence which would support any finding to the contrary was demonstrated in Appellee's earlier Brief.

B. The Kleenaire Filter.

The Kleenaire filter is described in the bulletin Defendants' Exhibit HHH [R. 1460] and exemplified by physical Exhibits SSS and TTT. This filter is an air filter of the impingement type utilizing corrugated wire screens which are set parallel to the general direction of

the air flow through the filter, and the angle of the corrugations of successive sheets is reversed to prevent nesting of the sheets. Here, however, any material similarity to the Farr filter or to the Air-Maze P-5 filter ends. The valleys of the corrugations of the Kleenaire filter do not provide air passages extending through the filter since in every instance each corrugation dead-ends in the frame of the filter panel. In other words, while the valleys of the corrugations form air passages which extend through the filters of the Farr and the Air-Maze P-5 [R. 1372, 1373], one end of each corrugation, and hence the passage formed thereby, is blocked by the frame in the Kleenaire filter [R. 1374, 1360]. Moreover, in the Kleenaire filter media there is no bend or change of direction of the corrugation and hence no change in the direction of the passage formed by the corrugation [R. 1402].

Based upon extensive and (as will be shown herein) for the most part uncontradicted evidence, the District Court found that the Kleenaire filter did not have the new mode of operation of the filter of the Farr patent in suit and the Air-Maze P-5 filter [Finding 30, R. 1179][1]; that the new and surprising result of the Farr and Air-Maze filters of high efficiency in removing dust from the air combined with a low pressure drop which does not rise rapidly with dust load is not found in the Kleenaire filter [Finding 31, R. 1180];[2] that the Kleenaire filters were

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[1]In their Reply Brief Appellants asserted that the District Court had not found that the mode of operation of the filter of the patent in suit was *new*. Any uncertainty in this regard is eliminated by New Finding of Fact 30 [R. 1179].

[2]Appellants also asserted in their Reply Brief that the trial court had not found that the filter of the patent achieved a *new and surprising result*. New Finding 31 [R. 1180] answers this contention.

commercially unsuccessful and had no utility since they clogged up with dust within a short period of time [Finding 26, R. 1178]; that the Kleenaire filters do not include all the elements of the claims of the patent in suit nor the new combination of elements of such claims [Findings 28 and 29, R. 1179];[3] and finally that the Kleenair filters offered only cumulative evidence of prior filters which did not contain either the elements, the mode of operation, or the new and surprising results of the filter of the Farr patent in suit which filter was not obvious to one skilled in the art either from the Kleenaire filters considered alone or in connection with the other prior art filters of record [Finding 32, R. 1180].

While, as above noted, Appellants sought to establish the manufacture and sale of modifications of the Kleenaire filter, the testimony offered was in deposition form only, lacked consistency and corroboration, was in conflict with an earlier affidavit of the principal deponent, and was found by the District Court to be insufficient to support a finding that any such modification had been made or sold [Finding 33, R. 1180].

The subject matter of the present action is such that while physical differences of the various filters in evidence may be apparent, their significance cannot be determined by mere visual observation. The reason, of course, is that we are dealing with matters such as paths of air flow and impingement of tiny particles of dust on collecting surfaces which cannot be determined satisfactorily by visual obser-

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[3]Appellants asserted in their Reply Brief that the trial court had not found that the *combination* of the patent in suit was not disclosed in the prior art. New Finding 29 [R. 1179] expressly describes the patented combination as *new*.

vation. Consequently, the operation and performance of the various filters and the effect of physical differences between them can only be determined by carefully controlled comparative tests. In the earlier trial of this action each of the parties introduced in evidence a number of such tests in the form of comparative test data obtained by their respective expert witnesses to demonstrate the performance of the filter of the Farr patent in suit, the Air-Maze P-5 filter and various of the prior art filters relied upon by Appellants. Appellants' witness Rowley and Appellee's witness Duncan testified at length as to the significance of the various test results and demonstrated by their testimony the need for such tests if the performance and operating characteristics of different filters are to be compared. Indeed, as pointed out on page 16 of Appellee's earlier Brief, in 1937 the witness Rowley had been employed to conduct an elaborate series of such tests of all commercially available filters for the Association of American Railroads, the results of which are contained in Plaintiff's Exhibit 27. Moreover, during the earlier trial the parties conducted certain joint tests on equipment provided by Appellee to insure unformity of results since different test dusts had been used in their respective *ex parte* tests. In spite of the critical necessity for such tests for an accurate comparison of performance characteristics of filters of the type here involved, and despite the fact that Appellants had in their possession two Kleenaire filters [Exs. SSS and TTT], Appellants introduced no evidence whatever of performance tests of Kleenaire filters. Moreover, when asked to compare the operating characteristics of these Kleenaire filters with those of the Air-Maze P-5 filter or of the Farr filter of the patent in suit, Appellants' expert witness Russell stated that he was not prepared to

do so since he had not tested the same [R. 1361]. In view of the need for comparative tests if an honest and accurate determination of the performance and operation of the Kleenaire filter was to be made in order that the trial court could make a realistic comparison of such filter with the Farr filter and Air-Maze P-5 filter, Appellee suggested a joint test of the Kleenaire filter [R. 1369, 1393]. Appellants declined to enter into such a joint test [R. 1396] and while stipulating to the correctness of the results of the tests set forth in Appellee's Exhibit 54-B-2 declined to so stipulate as to Appellee's Exhibit 54-B-1 [R. 1394]. Moreover, Appellants' counsel advised the court that he had his own test results [R. 1368] but did not introduce the same into evidence nor offer any explanation for such omission nor any testimony with respect thereto. Accordingly, the performance characteristics of the Kleenaire filter as demonstrated by Appellee's Exhibits 54-B-1 and 54-B-2 stand stipulated as to the former and uncontradicted as to the latter.

II.
SUMMARY OF ARGUMENT.

For the convenience of the Court, Appellee will reply to the contentions made in Appellants' Brief in the order in which they are presented by the Appellants and the following is presented simply as a short summary of the argument to be made by Appellee:

1. The evidence amply establishes that the Kleenaire filter does not embody the essential elements of the Farr

'479 patent in suit in view of both the structural differences between the two filters and the very marked differences in their operating characteristics and performance.

2. As properly construed in the light of the specification and drawings, the claims in suit of the Farr patent clearly distinguish over the Kleenaire filter.

3. The evidence establishes that the performance of the Kleenaire filters is markedly inferior to that of the Farr filter and that the two filters do not have the same mode of operation.

4. The evidence shows that the Kleenaire filters were unsuccessful since unsatisfactory for their intended purpose, and accordingly had no real utility.

5. The Kleenaire filters do not embody the invention of the Farr patent in suit, do not embody all of the elements nor the new combination of elements of the claims of the Farr patent in suit, and the Kleenaire filters differ in structure, mode of operation and are decidedly inferior in result to the filters of the Farr patent in suit.

6. The Farr patent in suit covers a difference in structure rather than a substitution of materials over the prior art and produces a new, unexpected and surprising result.

7. The evidence fails to establish that any Kleenaire filters were ever made or sold having air passages formed by the corrugations of screen members which extended through the filter.

8. The Farr patent in suit is a new combination of elements which have a new mode of operation and which achieve new and surprising results.

III.
ARGUMENT.

Introduction.

The points raised by Appellants will be considered separately in sections, which for the convenience of the Court will be numbered to correspond to the order in which they are presented in Appellants' brief. Since, however, many of the statements and conclusions expressed by Appellants are in direct conflict with the results of the tests [Exs. 54-B-1 and 54-B-2, R. 1455, 1456], such results will first be considered in order to avoid needless repetition. Exhibits 54-B-1 and 54-B-2 contain the results of tests conducted by Appellee's expert witness Duncan on a simulated Kleenaire filter. Appellee did not have available a genuine Kleenaire filter [R. 1379]. This simulated filter, however, was stipulated by Appellants to be substantially the same as the actual Kleenaire filter [R. 1381, 1382]. As above noted, Appellants also stipulated as to the correctness of Exhibit 54-B-2 [R. 1394]. While Appellants declined to stipulate as to the accuracy of Exhibit 54-B-1, this Exhibit stands uncontradicted in the record since Appellants offered no evidence to dispute the same, and indeed, even declined an invitation by Appellee to join in inter-partes tests.

As above noted, much of the testimony of the first trial was devoted to comparisons of the performance and operating characteristics of the various filters involved as determined by tests made by the expert witnesses. The important performance characteristics of filters of the type under consideration are pressure drop of the air passing through the filter, the efficiency of the filter in removing dust from the air, and the variations or changes in these

factors as the dust load accumulates in the filter [R. 114-116]. Appellee's witness Duncan described in some detail the test procedures which Appellee employs to determine these characteristics [R. 118-124], and introduced the results of tests made by him on the filter of the Farr patent in suit, the infringing Air-Maze P-5 filter and several prior art filters which had been asserted by Appellants against the patent [Exs. 11, 13, 29, 30, 31]. In like manner, Appellants' witness Rowley testified at length as to test procedures for determining these filter characteristics [R. 479-488] and Appellants introduced in evidence a number of charts showing test results, and consequently the operating characteristics of the filter of the Farr patent in suit, the Air-Maze P-5 filter and several prior art filters [Exs. HH, MM, VV, XX and ZZ].

The testimony offered by both parties demonstrated that the true operating characteristics of filters of the type under consideration cannot be determined by mere visual inspection but require tests under carefully controlled test procedures and in specially designed equipments. As noted above this requirement was most forcefully demonstrated by the testimony of Appellants' expert witness Russell who, when asked whether he was prepared to compare the operating characteristics of the Kleenaire filter with those of the Air-Maze P-5 filter or of the Farr filter of the patent in suit, testified simply, "No I am not" [R. 1361]. Russell could make no such comparisons since he had not tested the Kleenaire filters [R. 1351, 1361].

In order that this Court may appreciate the significance of the arguments which follows, there will now be described briefly the operating characteristcs of the Kleenaire filter as established by Exhibits 54-B-2 and 54-B-1

and a comparison of these operating characteristics with those of the filter of the Farr patent in suit and the infringing Air-Maze P-5 filter.

Considering first Exhibit 13 [R. 956A] and Exhibits 54-B-2 [R. 1456], Appellee's witness Duncan testified that in obtaining the data for these Exhibits, the same test dust was used and the same test procedure was employed except that the test shown in Exhibit 13 was run at 1200 cubic feet of air per minute through the filter and that of Exhibit 54-B-2 was run at 800 cubic feet of air per minute [R. 1383-1385. The only effect of this difference of air flow was that had the test of Exhibits 54-B-2 been run at the higher rate of air flow, both curves of 54-B-2 would be somewhat higher on the chart, that is the efficiency and pressure drop curves would be a little higher [R. 1386]. Duncan pointed out that as shown on Exhibit 13, the pressure drop of the Farr filter started at approximately 0.1 inches of water and increased to approximately 0.15 inches at the end of the test (the test being continued to a dust load of approximately 1,000 grams) and that the Kleenaire filter started at the same pressure drop of 0.1 inches of water but rose to over .5 inches at the end of the test (the test only being continued to the lesser dust load of approximately 780 grams). This marked increase in pressure drop (resistance to the flow of air through filter) took place quite rapidly in the Kleenaire filter showing that the filter was loading on its face rather than progressively loading as in the case of the Farr filter [R. 1389], and that the two filters do not operate in the same fashion [R. 1392-1393]. Duncan next compared the performance of the Kleenaire filter with the old Air-Maze "Type B" filter [Physical Ex. 5] (wherein the air

can only pass perpendicular to and hence through the sheets of the screen rather than parallel to and hence along the sheets of the screen as in the case of the filter of the Farr patent in suit and the Air-Maze P-5 filter [R. 140-142]). The performance charteristics of the Type B filter are shown in Exhibit 11, and Duncan had earlier testified that this exhibit demonstrated that the Type B filter did not have the characteristics performance of the Farr filter [R. 146] and that a different type of operation was taking place in the collection of dust by the two filters [R. 148], this difference being shown principally by the difference in the shapes of the curves of the two pressure drop curves [R. 147]. The tests of the Air-Maze Type B filter and the Kleenaire filter, shown in Exhibits 11 and 54-B-2 respectively, were run under the same conditions, including the same air flow [R. 1390-1391] and the results of these tests were very similar, the slight difference being that the Kleenaire filter showed an *earlier* increase in pressure drop than the Air-Maze Type B [R. 1391]. These tests established that the pressure drop characteristic of the Kleenaire filter was almost the same as the old Air-Maze Type B filter [R. 1393]. The above conclusions were confirmed by Duncan by repeating the test with a different type dust [R. 1395] from which Exhibit 54-B-1 [R. 1455] was obtained. Exhibit 54-B-1 was compared to Exhibit 31 which shows the test results using this different type dust with the filter of the Farr patent in suit [R. 1396]. Such comparison agreed with that previously described [R. 1396]. It should be noted that Exhibit 31 represents the results of joint tests performed by the witnesses for the parties [R. 728]. Also during the earlier trial of this action it was established by tests that the infringing Air-Maze P-5 filter has the same

characteristic performance as the filter of the Farr patent [R. 161-166, 173.]

The above tests demonstrate conclusively that the Kleenaire filter operated differently and did not achieve the new result of the filter of the Farr patent in suit. The marked increase in pressure drop with dust load establishes that dust loads on the face of the Kleenaire filter rather than progressively loading through the depth of the filter as in the case of the Farr filter and the Air-Maze P-5 filter. Of striking significance, this characteristic of the Kleenaire filter established by the tests was fully confirmed by Appellants' own witness Meyer, the only witness produced at the trial who had ever used a Kleenaire filter. Thus, Meyer after testifying that he discontinued the use of Kleenaire filters after trying them for one heating season [R. 1316] testified, "That was the trouble. It wasn't they didn't filter, but got dirty so quick that I had to give them steam baths all the time." [R. 1325.]

1. The Essential Elements of the Patent in Suit Are Not Found in the Kleenaire Filter.

The first point urged by Appellants is that the Kleenaire filters embody all of the essential elements of the filter of the Farr patent in suit. This contention is, of course, unsupportable in view of the comparative test results obtained as to the two filters in evidence which demonstrate that the performance characteristics of the Farr filter are markedly superior to those of the Kleenaire filter and that the two filters do not even have the same mode of operation [R. 1389, 1392, 1393]. As above noted, the Farr filter operates by progressive loading so that the dust accumulates through the depth of the filter as the dust load increases with the result that undesirable

increases of pressure drop with dust load is slight. On the other hand, the Kleenaire filter, like the old Air-Maze Type B filter, is a face loading filter, the dust collecting on the face of the filter causing a very marked increase in pressure drop as the dust load accumulates. If the "essential elements" of the filter of the patent in suit were embodied in the Kleenaire filter these marked differences in performance and result could not occur.

Essential to the filter of the Farr patent are a plurality of sheets of crimped or corrugated wire screens arranged generally parallel to the direction of air flow which subdivide the filter in both dimensions and form air passages through the filter which are independent of the openings in the screen. These air passages are formed by the valleys of the corrugations and result in the progressive loading feature of the patented filter. This progressive loading has been described in Appellee's earlier Brief on pages 13 through 15, and is illustrated in Appellee's Photographic Exhibits 9A through 9J. If progressive loading as distinguished from face loading is to be accomplished, it is necessary that the passages for the flow of air extend through the filter and accordingly that they be open at both ends of the filter [R. 1377]. The Kleenaire filter, while constructed of crimped or corrugated sheets of screen, with the sheets generally parallel to the flow of air, has the angle of each crimp or corrugation so designed that one end or the other thereof terminates or dead-ends in the filter frame.[4] Consequently, the

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[4]While this structural difference might appear to be slight from a mere visual comparison of the two filters, it is in fact critical to their performance and mode of operation as shown by the differences in results of the comparative tests, thus demonstrating the absolute necessity for performance tests if an accurate comparison is to be made between filters of the type here involved.

passages formed by the valleys of the corrugations do not extend through the filter. This was conceded by the Appellants' expert witness Russell who testified that there were no passageways at all in the Kleenaire filter formed by the crimp of the metal [R. 1358]. This difference is a critical one since it results in a face loading filter rather than a progressive loading filter [R. 1377, 1378] and causes the undesirable rapid increase of pressure drop with dust load shown by the above-described tests to take place in the Kleenaire filter.

As pointed out in Appellee's original Brief, pages 52 and 53, the passages formed by the valleys of the crimps or corrugations which extend through the filter, and the progressive loading accomplished thereby are, of course, present in the Air-Maze P-5 filter and are described in Air-Maze catalog [Pltf. Ex. 4].

In addition to the above, the corrugations or crimps of the mesh screen members of the filter of the Farr patent in suit and of the Air-Maze P-5 filter abruptly change in direction to create turbulence of air flow. The corrugations of the Kleenaire filter have no change in direction whatever [R. 1402]. This, too, was conceded by Appellants' witness Russell [R. 1360].

Appellants seek to establish the presence of "passages" in the filter because, as demonstrated in Appellants' Exhibit VVV, air could flow over and under the corrugations of the screen members from the front to the back of the

Kleenaire filter.[5] As above noted, the passages of the filter of the Farr patent in suit (and of the Air-Maze P-5 filter) which result in the progressive loading characteristic of these filters are the valleys of the corrugations which extend through the filters which are formed by the walls of the corrugations. That the "over and under" openings of the Kleenaire filter are entirely different and that they do not provide the passages of the Farr and Air-Maze P-5 filters is, of course, demonstrated by the above-noted tests which establish that the progressive loading accomplished by the filter of the patent in suit and the Air-Maze filter does not take place in the Kleenaire filter and that the Kleenaire filter is a face loading filter. Moreover, the tests establish that the Kleenaire filter does not possess the surprising result of the filter of the Farr

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[5]Appellants are now taking a completely inconsistent position in connection with these paths over and under the corrugations. As described in detail in Appellants' Opening Brief, commencing at page 20, the Air-Maze P-5 filter does not include an alternate flat screen sheet and successive sheets are laid together so that the corrugations are reversed in direction so as to avoid nesting. As in the Farr filter, *the valleys of the corrugations or crimps of the screen members form passages through the filter.* However, this arrangement results also in the presence of the same over and under paths found in the Kleenaire filter. Appellants urged (although contrary to the test results above described) that this indicated a different mode of operation between the patented filter and the Air-Maze P-5 filter and that infringement was avoided. Appellants apparently would have this Court hold on the one hand that the Kleenaire filter anticipates the patent in suit because, while it does not contain passages through the filter formed by the valleys of corrugations extending through the filter, it has possible paths for air flow over and under the crests of the corrugations, and on the other hand that the Air-Maze P-5 filter does not infringe the patent in suit because, even though, like the Farr filter, it has the air passages formed of the valleys of corrugations extending through the filter, it also has present the over and under air paths between corrugations.

patent of a high efficiency in removing dust from the air maintaining at the same time a relative low pressure drop across the filter [R. 1377-1379]. That the over and under (or zig-zag) paths formed by two valleys of the corrugations of the Kleenaire filter coming together to form an opening are not the passages required for the performance of the filter of the Farr patent in suit was further demonstrated by Duncan who testified, without contradiction, that if the same size filters and the same packing were employed there would be only about one-tenth as many of the zig-zag openings in the Kleenaire filter as there are passages formed by the corrugations in the Farr filter [R. 1434].

The District Court found that the Kleenaire filter does not have the new mode of operation of the filter of the Farr patent in suit and of the Air-Maze P-5 filter since the dust load accumulates on the face of the Kleenaire filter whereas in the Farr and Air-Maze P-5 filters the dust accumulates progressively along the walls of the passages formed by the corrugations which extend through the filter and which change in direction to cause turbulent flow of air through the passages and through the mesh of the screen despite increasing dust load [Finding 30, R. 1179]. The District Court also found that the Kleenaire filter did not achieve the new and surprising results of the Farr and Air-Maze P-5 filters since the Kleenaire filter did not have high efficiency in removing dust from air and also a low pressure drop which did not increase rapidly, but rather the pressure drop of the Kleenaire filter rose so rapidly with dust load that the filters became clogged in a short period of time [Finding 31, R. 1180]. These findings of fact are not only supported by substantial evidence but further, the record does not contain any

evidence which would sustain any contrary findings. Accordingly, there is no basis for Appellants' contention that the Kleenaire filters embodied all of the essential elements of the filter of the Farr patent in suit.

2. The Kleenaire Filters Do Not Disclose the Combination of Elements of Claims 4, 5, 7 and 8 of the Patent in Suit.

Appellants next urge that the so-called "9° Kleenaire" filter (those conceded to have been made and sold) embodied all of the elements of the claims in suit of the Farr patent. This contention is, of course, contrary to the specific finding by the District Court that if the Kleenaire filter had been subsequent to the Farr patent in suit the Kleenaire filter would not infringe the patent [Finding 29, R. 1179]. This finding is fully supported by the evidence since, for example, claim 5 (the claim discussed by Appellants) calls for crimped mesh screening members being constructed and arranged so as to form "passages, the walls of which are composed of such mesh members, which passages extend through said panel." This critical element is not found in the Kleenaire filter.

It is axiomatic that the claims of a patent must be construed and interpreted in the light of the specification and drawings of the patent. (*Schriber-Schroth Co. v. Cleveland Trust Co.* (U. S., 1940), 311 U. S. 211, 85 L. Ed. 132; *McRoskey v. Braun Mattress Co.* (C. A. 9, 1939), 107 F. 2d 143.) This rule was applied by the trial court [R. 1442-1445] which found that the term "passages" in Claims 4, 5, 7 and 8 of the Farr patent in suit, when read in the light of the specification and drawings of the patent, means the valleys of the corrugations in the mesh screening members and the terms "passages

changing direction," "passages being disposed angularly," and "passages changing abruptly in direction" employed in these claims mean an angle in the valleys formed by the corrugations [Finding 27, R. 1178]. The District Court further found that the Kleenaire filters do not have these passages called for by the patent claims since the valleys of the corrugations in the mesh screening members of the Kleenaire filters have no change in direction and have one end or the other ending in the frame with the result that such valleys do not extend through the filter [Finding 28, R. 1179].

An examination of the patent specification and drawings demonstrates that the lower court properly construed the claims and that Finding 27 is correct. Thus, the word "passages" is repeatedly used throughout the descriptive portion of the patent. For example, the patent states:

> "Certain of the screen wire members 4 of the filter panel are crimped or corrugated as indicated, in Figure 3, to provide in cooperation with adjacent screen members air passages 5 leading from the front to the rear of the air panel" [p. 1, col. 2, line 21].

Reference to the numeral five in Figure 3 of the patent shows that the air passages described are the valleys of the corrugations.

> "The screen members 4 are so crimped that the resulting air passages 5 are at angles to lines normal to the face of the filter panel so as to cause the air flowing through such passages to change in direction" [p. 1, col. 2, line 29].

> ". . . said air passages are indicated as changing in direction as indicated at 6, which change in direction is preferably somewhat abrupt" [p. 1, col. 2, line 37].

As seen in Figs. 3 and 4, the reference numeral six indicates the sharp bend of the corrugation.

On page 1, column 2, lines 49 and 52 of the patent reference is made to "entrance portions 7 of the passages" and "exist portions 8 of the passages," and in Fig. 3, the reference characters 7 and 8 indicate the two ends of the valleys formed by the corrugation.

Further, on page 2, column 1, line 16, the patent states:

> "it will be seen that there are provided passages for flow of air through the maize of screen wire filter members, such as by the flow of air through one of the entrance passages 7 and out of the connecting exit passage 8."

The drawings of the patent show that the described flow of air is in the valleys formed by the crimps or corrugations of the screens.

> "By the construction shown, however, where the walls forming the passages 7 and 8 are foraminous in character, each opening in said walls acts itself for efficient collection of dust" [p. 2, col. 2, line 9].

> "As the filter becomes progressively loaded with dust, the air travels successively further down the passage 7 before flowing through the openings in the screen forming the passage" [p. 2, col. 2, line 22].

Next the patent describes [p. 2, col. 2, lines 33-46] the function of the abrupt turn "in the passage provided between the entrance and exit portions 7 and 8," stating that this abrupt turn causes the air to flow "through the walls of such passages" rather than "in a stream through the passages 7 and 8."

From the foregoing there can be no question as to the intended meaning of the word "passages." This term

manifestly is used to refer to the valleys of the corrugations in the mesh screening members. Moreover, the provision in claim 5, "a portion of each of said passages being disposed angularly with respect to a remaining portion of the passages" obviously refers to the angle in the valleys formed by the abrupt bend in the corrugations.

In support of their contention that the "passages" called for by the claims in suit are found in the Kleenaire filter, Appellants on page 11 of their Supplemental Brief refer to the testimony of Russell [R. 1342-1344]. Russell's testimony was based only on certain statements (referring to the zig-zag or over and under channels) contained in the Kleenaire bulletin [Ex. HHH]. Russell nowhere testified that these channels were "passages" within the meaning of that term as used in the Farr patent in suit, nor did Appellants even interrogate Russell along such lines. On the other hand, Appellants on cross-examination asked the witness Duncan where in claim 4 anything is said about the crimps extending through the panel, and after being instructed by the lower court that he was entitled to read the claim in connection with the specification and drawings, Duncan stated, "the words 'thereby forming passages extending through said filter' require that the passages formed by the troughs of the crimp extend through the filter" [R. 1424-1426]. Further, the witness Duncan testified that in the language of the patent the Kleenaire filter did not contain mesh screening members constructed and arranged to form passages extending through the filter nor passages having walls composed of mesh members nor passages changing direction [R. 1427, 1428].

Not only is the construction of the claims in suit by the District Court correct in view of the specification and

drawings and confirmed by the only filter expert who testified on the question, but is in accord with the principle long established by the Supreme Court:

> "The court should proceed in a liberal spirit, so as to sustain the patent and the construction claimed by the patentee himself, if this can be done consistently with the language which he has employed."
>
> *Klein v. Russell* (1873), 86 U. S. 433, 22 L. Ed. 116, 124.

See also:

> *Voices v. Uneeda Doll Co.* (C. A. 2, 1929), 32 F. 2d 673;
>
> *Black & Decker Mfg. Co. v. Baltimore Truck Tire Serv. Corp.* (C. A. 4, 1930), 40 F. 2d 910;
>
> *Jensen-Salsbery Lab. v. O. M. Franklin Blackleg S. Co.* (C. A. 10, 1934), 74 F. 2d 501.

Accordingly, Appellants' contention that the Kleenaire filter embodies all of the elements of the patent in suit is without merit.

3. The Kleenaire Filters Have a Different Mode of Operation Than the Filters of the Farr Patent in Suit.

Appellants next describe the progressive loading feature of the filter of the Farr patent in suit and make the bald assertion that the Kleenaire filters operated in substantially the same way. The only evidence relied upon by Appellants in support of this contention is the testimony of Appellee's witness Duncan, appearing on pages 1418-1423 of the record. Examination of Duncan's testimony fails to disclose even the slightest suggestion that the two filters operate in the same way. Moreover, this completely un-

founded contention of Appellants is in direct contradiction to Duncan's testimony that the type of loading which would take place in the Kleenaire filter is "surface or face type loading" as distinguished from the progressive loading of the patent in suit and the Air-Maze P-5 filter [R. 1377, 1378]. Duncan further testified, "This increase in resistance (of the Kleenaire filter) takes place quite rapidly, showing that the filter was loading on its face and not following the progressive loading described as a property of the Farr filter" [R. 1389]. This testimony is, of course, fully substantiated by the operating characteristics of the filters established by the results of the tests above described.

The trial court found that the filter of the Farr patent in suit has a *new* mode of operation in that the dust accumulates progressively along the walls of the passages formed by the corrugations which extend through the filter and which change in direction thereby permitting turbulent flow of air through the passages and through the mesh of the screen despite increasing dust load; that the Air-Maze P-5 filter has the same new mode of operation; and that in the Kleenaire filters the dust accumulates on the face of the filters and accordingly the Kleenaire filters did not have this mode of operation [Finding 30, R. 1179]. This finding is fully supported by the evidence. Appellants' unfounded assertion that the Farr '479 filter and the Kleenaire filter operate in substantially the same way is obviously mere make-weight and not deserving of serious consideration by this Court.

4. The Kleenaire Filters Were Not Satisfactory for Their Intended Purpose and Had No Real Utility.

Appellants next assert that "the results obtainable with the '9° Kleenaire' were adequate and are fully comparable with those obtainable with the filter of the Farr '479 patent in suit" (Supp. Br. p. 15). The contention that the results obtainable with the two filters are comparable is contrary to all the evidence in the case and in direct conflict with the uncontradicted test results of Exhibits 54-B-1 and 54-B-2. Moreover, Appellee's witness Duncan testified that the Kleenaire filter did not give the surprising result of high efficiency in removing dust from the air, *maintaining* at the same time a relatively low pressure drop across the filter [R. 1379], and Appellants' witness Russell conceded in response to a question by the trial court that the Kleenaire filters would "clog up quicker than the others" [R. 1362] and that his experience indicated that the characteristics of the Air-Maze P-5 filter is about the same as the Farr filter but that the Kleenaire would have a more rapid increase in resistance with gathering dust load [R. 1367].

In spite of this testimony, Appellants attempt to persuade this Court that the results of the two filters are comparable by a misleading comparison of the results obtained up to a dust load of only 600 grams, stating: "Mr. Duncan made it clear that the Farr filter must be cleaned when the dust load rises to 500 or 600 grams of dust" [R. 183, 184]. This paraphrasing of Duncan's testimony is inaccurate and misleading in the extreme. Duncan testified only that the Farr Company recommends

that filters be cleaned at about 600 grams. As shown by the uncontradicted testimony of Richard Farr, dust loads far in excess of 600 grams are regularly encountered in commercial practice [R. 286, 287]. Further attempting to justify their misleading comparison, Appellants assert that "the standards of the filter industry permit a pressure drop rise of up to 0.5 inches of water [R. 184, 185, 339]," and from this assert that the 0.29 inches pressure drop of the Kleenaire filter at 600 gram dust load shown on Exhibit 54-B-2 [R. 1456] (as compared to the 0.11 inches pressure drop of the Farr filter at this same dust load shown by Exhibit 13 [R. 956A]) is not significant. Again, Appellants' analysis of the testimony is very misleading. Duncan testified merely that in most ventilating systems a half inch of pressure drop would be perfectly satisfactory [R. 184, 185] and Appellants' witness Watterson testified that commercial and industrial air conditioning systems "permit up to a half inch of water resistance when the filter is dirty" [R. 339]. As explained by the witness Richard Farr, however, it is the *rate of increase* of pressure drop which is detrimental as it unbalances a system resulting in inadequate cooling in a ventilating system, loss of horsepower and bad smoking in the case of Diesel engines, and overheating and possible burning out of the firebox of a heating system [R. 284-286].

In addition to its structural differences, greatly inferior performance and different mode of operation, the lower court found that the Kleenaire filters had no utility since

they accumulated a dust load on the front face of the filter and within a short period of time clogged up and would not work [Finding 26, R. 1178]. Appellants attack this finding on the ground that the blowers in use at the time the Kleenaire filters were used were not adequate. Be that as it may, the only witness produced at the trial who had ever used a Kleenaire filter testified that he discontinued handling them because they had too much resistance to the air [R. 1310, 1314], that they had to be cleaned within a week or ten days [R. 1315], that he even removed and discarded the filters from his own plant less than a year after they were installed [R. 1316, 1317]; that the filters became coated with dust and slowed down the air flow [R. 1320, 1325]; and finally that people wouldn't pay the price of the Kleenaire filter and still have the service work in cleaning it [R. 1326].

In view of this uncontradicted testimony, the evidence fully supports the District Court's finding that the Kleenaire filter had no utility.

Based on testimony strikingly similar to that in the instant case, this Court has recently held that a prior device could not be used to anticipate or negative invention of a patent. Thus, in *Stearns v. Tinker & Rasor* (C. A. 9, 1955), 220 F. 2d 49, the alleged prior user testified that his device was unsatisfactory and was discarded in favor of a different device. The Court stated, 220 F. 2d at 55:

> "The evidence does not show use, commercial or otherwise, but shows only unsuccessful experiments; and such experiments cannot anticipate or negative invention."

5. The Kleenaire Filters Do Not Anticipate the Farr Patent as They Differ in Structure, Mode of Operation and Result.

Appellants next simply reassert their contentions of points 2 through 4 of their Supplemental Brief (pp. 10-16) and state that the mere fact that the performance of the Kleenaire filters was inferior to the Farr '479 filters (lower efficiency and higher pressure drop) does not rule them out as anticipations since imperfect prior art devices may invalidate a patent. It should be noted that Appellants omit any reference to a third important operating characteristic of the filter of the Farr patent in suit not found in the Kleenaire filters—small rise in pressure drop as the dust load accumulates on the filter [R. 1389]. Appellee has shown herein that these contentions of Appellants find no support in the evidence and that the findings of the trial court to the contrary are fully supported by the record. Thus, the Kleenaire filter does not embody all the elements of claims 4, 5, 7 and 8 of the patent, nor does the Kleenaire filter operate in the same way as nor produce comparable results to the filter of the Farr patent. Accordingly, the Kleenaire filters do not anticipate the Farr patent in suit on no less than three independent grounds:

(A) The Kleenaire filter does not embody the elements of the claims in suit [Findings 27, 28 and 29, R. 1178, 1179], hence it does not anticipate the Farr patent. It is well settled that:

> "in order to negative novelty or, as it is usually expressed, to 'anticipate' an invention, it is necessary that all of the elements of the invention or their equivalents be found in one single description or structure where they do substantially the same work in substantially the same way. [*Imhaeuser v. Buerk,*

101 U. S. 647, 660, 25 L. Ed. 945 (1879); *Bates v. Coe,* 98 U. S. 31, 25 L. Ed. 68 (1878); *Ottumwa Box Car Loader Co. v. Christy Box Car Loader Co.,* 215 Fed. 362, C. C. A. 8 (1916); *Dow Chem. Co. v. Williams Bros. Well Treating Co.,* 81 F. (2d) 495, 501, C. C. A. 10 (1936); *Universal Oil Products Co. v. Winkler-Kock E. Co.,* 6 F. Supp. 763, 770, D. C., D. Del. (1934), Aff'd 7 F. (2d) 991, C. C. A. 3 (1935).]"

Walker on Patents (Deller's Ed., 1937), Vol. 1, p. 255.

This rule has recently been recognized by this Court in *Jacuzzi Bros. v. Berkeley Pump Co.* (1951), 191 F. 2d 632 at 637:

"A true combination which performed a new function necessarily must be found as a whole in a prior patent or publication in order to accomplish destruction of a grant of monopoly."

(B) The Kleenaire filter does not possess the new mode of operation of the filter of the Farr patent or attain its new and useful results [Findings 30, 31, R. 1179, 1180] and accordingly does not anticipate the patent.

"To change the form of an existing machine, and by means of such change to introduce and employ other mechanical principles or natural powers, or, as it is termed, a new mode of operation, and thus attain a new and useful result, is the subject of a patent."

Winans v. Denmead (1853), 14 U. S. 330, 341, 14 L. Ed. 717, 721.

"A device which does not operate on the same principle cannot be an anticipation."

Los Alamitos Sugar Co. v. Carroll (C. A. 9, 1909), 173 Fed. 280, 284.

(C) The Kleenaire filter does not achieve the new and surprising results of the filter of the Farr patent [Finding 31, R. 1180] and accordingly does not anticipate the patent. See *Webster Loom Co. v. Higgins* (1882), 105 U. S. 580, 26 L. Ed. 1177, and other decisions referred to on pages 60-62 of original Brief for Appellee.

6. The Farr Patent in Suit Is Not a Mere Substitution of Materials but Differs in Structure From Prior Filters and Achieves a New and Surprising Result.

This assertion was fully met in the original Brief for Appellee (pp. 63-67) wherein it was pointed out that the filter of the Farr patent in suit was a change not only of materials but a change of structure resulting in a device having an entirely different mode of operation than the Detroit paper air filters. Moreover, as shown by the cases there cited, even were the case presented merely one of substitution of materials, in view of the new and unexpected results and the different mode of operation, the Farr patent would constitute a patentable invention over the Detroit filter.

Appellee has shown herein that the findings of the lower court of the differences in structure, mode of operation and results between the Farr filter and the Kleenaire filter are fully supported by the evidence. No additional testimony whatever was introduced by Appellants involving the Detroit paper air filters or any relation between them and the Kleenaire filters. Moreover, as pointed out in Appellee's original Brief, the Patent Office has already decided, during the prosecution of the patent in suit, that the Farr patent constitutes invention over the Detroit air filters, and, as stated by this Court:

> "And the presumption that a patented combination is new and useful and embodies invention has added force where, as here, it appears that the patents relied upon as showing anticipation were considered by expert patent office officials. While their judgment is not absolutely binding on a court, it is entitled to great weight and is to be overcome only by clear proof that they were mistaken and that the combination lacks patentable novelty."
>
> *J. A. Mohr & Son v. Alliance Securities Co.* (C. C. A. 9, 1926), 14 F. 2d 799, 800.

Since no additional testimony whatever was introduced by Appellants on this question, the lower court properly found:

> "The Kleenaire filters so made and sold offer only cumulative evidence of the manufacture prior to the invention of the Farr patent in suit of filters made of wire screen which did not contain either the elements, the mode of operation, or the new and surprising results of the filter of the Farr patent in suit, and the filter of the Farr patent in suit was not obvious to one skilled in the art either from such Kleenaire filters considered alone or in connection with the other prior art of record such as the Detroit paper filters." [Finding 32, R. 1180.]

7. The So-called "45° Kleenaire" Filter Was Neither Established by Evidence nor Does the Same Have Any Bearing on the Issues Here Presented.

Appellants attempted to establish the prior manufacture and sale of filters which were said to differ from the Kleenaire filters of Exhibits SSS and TTT in that the angle of corrugations in the filter media was less steep. In this manner Appellants hoped to establish that Kleenaire filters having passages formed by corrugations ex-

tending through the filter had been made and sold. It should be noted that no attempt was made to establish that any such filters were ever made or sold having an abrupt change in direction of the passage formed by the corrugation with the result that even had the modified filters been established by the evidence, they would not anticipate the Farr patent in suit. Moreover, Appellants' evidence as to the manufacture and sale of the so-called "45° filters" was held by the trial court to be insufficient to support a finding that such filters had ever been made or sold [Finding 33, R. 1180]. Appellants attack this finding as being clearly erroneous, relying on the deposition testimony of the witnesses Worth and Flaig, even though the trial court after reading the depositions stated that there was not only a lack of preponderance of evidence of such sales but that it would almost have to make the finding in the negative [R. 1447].

A review of the depositions amply supports this view. Thus, the only evidence was oral testimony based upon events which had occurred approximately 20 years ago. While the witness Worth testified that he had made and sold Kleenaire filters having 45° corrugations, he was unable to even estimate the number when asked [R. 1233]. Moreover, in describing his work with 45° corrugations Worth earlier testified that he merely experimented with the same [R. 1199] and that "As I told you previously, in the original tests of this type of filter I had the angles placed at a forty-five degree angle and I discovered that by changing the angle of corrugations we gained more efficiency and the final result was that the plates were made, corrugated, from one corner of the plate to the other as the cut shows" [R. 1225]. Again, Worth testified, "As I stated previously, I started out with this

type of corrugation—forty-five degree corrugation * * * And I found as I went along with my experiment this was not as efficient as this one, * * *" [R. 1237]. The same witness, by affidavit [Ex. 54-C, R. 1457], stated that he invented the Kleenaire filter and thereafter began their manufacture and sale and that the crimps or corrugations of the filter media were so arranged that one end terminated in the frame. The other deposition produced by Appellants to establish the manufacture and sale of the 45° filter proved even less convincing. Thus, the witness Flaig, who went to work for the Kleenaire Corporation immediately upon graduation from high school [R. 1267] and whose duties were making filters and crating them for shipping, as he was the only one working there at the time [R. 1268], testified that he had no definite recollection as to what the angles of the corrugations were [R. 1297] and that he was given no instructions as to changing the angle of corrugation of the filter unit he was making [R. 1277, 1278], thereby contradicting the testimony of Worth who had stated that he was selling the 45° filters after Flaig came to his employ [R. 1250] (although he also testified [R. 1250] that he put out the 45° filters the first few months that he was in business and before Mr. Flaig came to him).

That this garbled and inconsistent oral testimony based upon events alleged to have transpired some 20 years ago wholly fails to meet the burden of proof of prior use and sale established by the Supreme Court and recognized by this Court is clear. Thus, in the leading case of *Washburn & Moen Mfg. Co. v. Beat 'Em All Barbed Wire Co.* (1891), 143 U. S. 275, 36 L. Ed. 154, in holding the patent valid against the defense of public use where a large number of witnesses had testified as to the use of

a barbed wire fence such as that claimed in the patent, the Court stated, 36 L. Ed. at 158:

> "We have now to deal with certain unpatented devices, claimed to be complete anticipations of this patent, the existence and use of which are proven only by oral testimony. In view of the unsatisfactory character of such testimony, arising from the forgetfulness of witnesses, their liability to mistakes, their proneness to recollect things as the party calling them would have them recollect them, aside from the temptation to actual perjury, courts have not only imposed upon defendants the burden of proving such devices, but have required that the proof shall be clear, satisfactory and beyond a reasonable doubt. * * * Indeed, the frequency with which testimony is tortured, or fabricated outright, to build up the defense of a prior use of the thing patented, goes far to justify the popular impression that the inventor may be treated as the lawful prey of the infringer. The doctrine was laid down by this court in Coffin v. Ogden, 85 U. S. 18 Wall. 120, 124 (21:821, 823), that 'the burden of proof rests upon him,' the defendant, 'and every reasonable doubt should be resolved against him.' "

See also:

Smith v. Hall (1936), 301 U. S. 216, 81 L. Ed. 1049, 1055;

Deering v. Winona Harvester Works (1894), 155 U. S. 286, 39 L. Ed. 153.

The rule has been consistently followed by this Court.

Paraffine Companies v. McEverlast, Inc. (1936), 84 F. 2d 335, 339;

Waterloo Register Co. v. Atherton (1930), 38 F. 2d 75.

In this latter case this Court stated:

> "The rule is well settled, of course, that a defense of this kind must be proved with certainty and beyond reasonable doubt; but whether the proof measures up to that requirement, or not, *is ordinarily for the trial court to determine.*" (Emphasis added.)

This Court has very recently, however, reversed a trial court's finding of prior use based upon uncorroborated oral testimony in deposition form, holding in *Stearns v. Tinker & Rasor* (1955), 220 F. 2d 49, 55:

> "There simply is not here the degree of proof which will sustain a finding of prior public use. Paraffine Companies, Inc., v. McEverlast, Inc., 9 Cir., 84 F. 2d 335, 339; Rown v. Brake Testing Equipment Corp., 9 Cir., 38 F. 2d 220, 223."

Appellants next contend that even though the evidence is insufficient to establish the sale of 45° filters, Exhibit CCC [R. 1458, 1459] establishes that such filters were offered for sale and illustrated in a printed publication. This fact, however, is utterly immaterial to the question presented. Counsel for Appellee conceded that the device shown in Exhibit CCC was manufactured and sold [R. 1188] but this is not the device on which Appellants' argument is based. As above noted, Appellants seek to establish the 45° filter to show that Kleenaire filters were made having corrugations extending through the filter rather than dead-ending at one end or the other in the frame of the filter. Exhibit CCC illustrates a filter in which the angle of corrugations is approximately 45°, but the change in angle of the corrugations is accompanied by a change in filter dimensions with the result that the corrugations dead-end in the frame in Exhibit CCC just as do the corrugations of Exhibits SSS and TTT. The same situation is true of Defendants' Exhibit HHH [R. 1463]. There,

Figure 1 illustrates a filter wherein the corrugations are approximately 9° and Figure 3 indicates a filter wherein the angle of corrugations is approximately 45°. Again, the dimensions of the filter are changed in each case so that the corrugations dead-end in the frame. These changes in dimensions demonstrate that meticulous care was taken in the various drawings of the Kleenaire filters to insure that the corrugations dead-end in the frame regardless of the size or dimensions of the filter illustrated [R. 1413, 1414].

Accordingly, the trial court's finding that the evidence failed to establish that any Kleenaire filters were ever made and sold which had corrugations not terminating at one end or the other in the filter frame [Finding 33, R. 1180] is fully supported. Since Exhibit CCC does not describe such a filter, Appellants' argument with respect to this exhibit has no bearing on the question.

Appellants' argument on page 18 of their Supplemental Brief with respect to the abandoned application of the patentee of the patent in suit is based upon the assumption that the "45° Kleenaire" is substantially identical with the forms of the Farr filter shown in Figures 3 and 5 of the abandoned application. The filters shown in these figures, however, contain corrugations which extend completely through the frame rather than dead-ending in the frame as in the case of all proven Kleenaire filters. Appellants' assumption is therefore unsupported and accordingly the argument based thereon of no merit. Moreover, the argument itself is incorrect since Appellants neglect to mention that each of the claims in suit of the patent describes the corrugations which form the passages through the filter as changing in direction, a feature not suggested even in the alleged modifications of the Kleenaire filters which Appellants failed to establish.

8. The Farr Patent in Suit Is a True Combination of Elements Which Function Together in a New Mode of Operation to Produce New and Surprising Results.

The final contention made by Appellants in their Supplemental Brief is that the patent in suit is invalid as an unpatentable combination of old elements. This point was urged by Appellants in their Opening Brief (pp. 27-38) and was fully met by Appellee in its original Brief (pp. 57-63). Appellants now urge, however, that the District Court made no finding that the old elements of the patent in suit perform an additional and different function in combination than they perform out of it, and contend that under the recent decision of this Court in *Kwikset Locks v. Hillgren* (1954), 210 F. 2d 483, the patent is accordingly invalid. As will be shown herein, the *Kwikset* case not only fails to support Appellants' contention, but is directly *contra* thereto. Moreover, such a finding was definitely and unequivocally made by the District Court. Thus, the District Court found that the filter of the patent is to a new combination of elements [Finding 29, R. 1179] which has a new mode of operation [Finding 30, R. 1179] and which achieves new and surprising results [Finding 31, R. 1180]. Appellants' statement that the District Court failed to find that the elements in combination performed an additional and different function is wholly unfounded and simply ignores these clear and express findings.

Kwikset Locks v. Hillgren (C. A. 9, 1954), 210 F. 2d 483, relied upon by Appellants, involved two patents. The first patent to Hillgren covered the combination of a reverse rocker type lock and a deadlatch mechanism to prevent tampering with the lock. The trial court

sustained the patent simply on the ground that the patentee was the first to combine these two items, both of which were in the prior art. This Court held that neither the reverse rocker nor the deadlatch mechanism operated any differently in combination than in the prior art and that the combination accomplished no more than the sum of its parts (*i.e.,* no new result). A straightforward case of aggregation was thus presented and, of course, was held to be unpatentable. The second patent in suit, the Kwikset patent, covered a combination door knob consisting of three separate parts. As to this patent, the Court stated:

> "Since knobs consisting of these three elements are not new to the art, if the validity of the Kwikset patent is to be sustained, it must be done on the basis of the particular construction of its several parts and the manner in which they are fitted together."
>
> 210 F. 2d at 488.

The Court held the patent valid and the patent in suit is of precisely the same nature. Thus, the evidence establishes that the new and surprising results of the filter of the patent in suit are achieved by the particular construction of its several parts and the manner in which they are fitted together. The sheets of screen mesh are arranged parallel to the general direction of air flow and are corrugated or crimped to provide valleys or passages extending through the entire depth of the filter through which the air can flow as the filter becomes progressively loaded with dust. Moreover, these corrugations are abruptly bent so as to impart turbulence to the air flowing through the passages thereby insuring high efficiency. Further, a large number of these corrugated sheets are employed and, in the language of this Court, are "fitted together" so as

to divide the panel both in the horizontal and vertical dimensions into a multiplicity of the above-described passages and consequently separate the air flowing through the filter into a large number of small filaments to provide high efficiency. Like the second patent in the *Kwikset* case the Farr patent covers a patentable combination.

In the very recent decision of this Court in *Stearns v. Tinker & Rasor* (1955), 220 F. 2d 49, a combination patent covering an insulation testing device known in the art as a "holiday detector" was held valid, the Court reversing a decision of the trial court to the contrary. The Court held, 220 F. 2d at 57:

> "The elements of the Stearns combination do functionally operate differently in the combination than they did in their old surroundings. * * * And this different coaction of the elements produces a new and useful result, viz.: The detection of holidays in a more facile and efficient way. (Citing cases.)"

The combination of the patent in suit clearly meets these requirements. Thus, as described in the preceding paragraph, the form and arrangement of the screen sheets and of the corrugations therein function to divide the air passing through the filter into a large number of small filaments, and form passages extending through the filter to permit progressive loading of dust in the filter and, further, abruptly change in direction to impart turbulence to the air flowing through the filter. There can be no question but what the elements of the combination operate differently in the combination than they did in their old surroundings, since, as found by the trial court, the filter of the patent has a new mode of operation [Finding 30, R. 1179]. Moreover, this different coaction of elements produces a new and surprising result [Finding

31, R. 1180]. The combination of the patent in suit therefore meets the requirement established by this Court in the *Stearns* case and amounts to patentable invention.

Conclusion.

Both judgments of the District Court are fully supported by the Findings of Fact. Moreover, the evidence amply supports each of the Findings. Appellants have failed to cast any real doubt upon any of these Findings and most certainly have not shown any of them to be clearly erroneous as required by Rule 52 of the Federal Rules of Civil Procedure. Appellee respectfully submits that the judgments of the District Court should be affirmed.

Respectfully submitted,

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